

REMARKS

Reconsideration and withdrawal of the rejection set forth in the Office Action dated April 7, 2006 is respectfully requested. Claims 1-31 are currently pending this application.

Claims 1-31 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,370,293 to Emmerich et al. (hereinafter "Emmerich et al.") in view of U.S. Patent No. 6,567,600 to Yoshida (hereinafter "Yoshida"). The applicants respectfully disagree with this rejection.

Prior Art

Yoshida teaches an optical amplifying medium component and an optical fiber amplifier comprising the optical amplifying medium component. [Yoshida, col. 1, lines 8-11] Yoshida's optical amplifying medium component comprises a first substrate on which an optical amplifying medium is placed and a second substrate opposite to the first substrate to sandwich the optical amplifying medium between the two substrates. [Yoshida, col. 1, lines 42-44] The substrates are provided as thin plates capable of heating and cooling the optical amplifying medium. The plates are generally Peltier effect devices and the optical amplifying medium is generally an optical fiber. [Yoshida, col. 3, lines 51-55] In addition, Yoshida teaches an erbium-doped fiber (hereinafter "EDF") sheet. The EDF sheet comprises an EDF and two temperature sensitive semiconductor devices, also termed sheet films. The sheet films possess negative temperature coefficients. [Yoshida, col. 4, lines 2-5] The EDF is sandwiched between the two sheet films to make a laminated sheet assembly. [Yoshida, col. 4, lines 13-15]

Yoshida teaches that "the optical medium component comprises: a pair of substrates, 2a and 2b, provided as thin plates." [Yoshida, col. 3 lines 51-53] Yoshida teaches that "the EDF and the thermister are arranged on one of the sheet films and then covered with another one to make a laminated sheet assembly for

keeping the EDF from twisting, bending, and crossing." [Yoshida, col. 4, lines 12-16]

Emmerich et al. apparently teach flexible optical circuits having optical fibers encapsulated between porous substrates and methods for fabricating same (title). As the Examiner notes at page 2 of the Office Action, "Emmerich et al. fails to specifically disclose the substrate to comprise a heating element to maintain a constant temperature." However, the deficiency identified by the Examiner is more significant than simply failing to disclose a substrate comprising a heating element. Yoshida's "heating elements" are Peltier effect devices (see e.g., Yoshida, col. 3, lines 49-56; FIG. 4). Peltier effect devices are rigid, and would not be suitable as flexible substrates. Moreover, Emmerich et al. disclose using a substrate that is a flexible porous substrate, described as a flexible mesh (see, e.g., Emmerich et al., col. 6, lines 47-54). The devices described by Yoshida and Emmerich et al. cannot obviously be combined. For example, it is not clear how a Peltier effect device could be made into a flexible mesh and retain its properties.

Prior Art Distinguished

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP 2143.01. Yoshida discloses a (rigid) Peltier effect device that serves as a heating element. Applying the Peltier effect device to the teachings of Emmerich et al. would result in a device that is rigid, where Emmerich et al. teaches a flexible device. Accordingly, there is no suggestion or motivation to modify the teachings of Emmerich et al. to incorporate a heating element as disclosed by Yoshida. Notably, Yoshida has provided no enabling disclosure related to any heating device other than a Peltier effect device.

The combination of the flexible substrate of Emmerich et al. with the rigid heating element of Yoshida would result in a rigid device. Claim 1 includes the

language "partially flexible substrate further comprising a heating element for maintaining said flexible circuit at a constant temperature." Since the Emmerich et al./Yoshida device lacks a flexible circuit, claim 1 is allowable over Emmerich et al. and Yoshida.

"It is improper to combine references where the references teach away from their combination." MPEP 2145. The applicants respectfully assert that one skilled in the art would not look to Yoshida to construct an optical amplifying medium having a flexible substrate because Yoshida explicitly teaches away from using material prone to bending or twisting.

Claims 2-5, which depend from claim 1, are allowable at least for depending from an allowable base claim, and potentially for additional reasons. For example, the Examiner asserts at page 3 of the Office Action, "although Emmerich et al. fails to specifically disclose temperature sensors... a sensor would have been obvious... to determine if the circuit needs to be cooled or heated..." but it is not clear how the flexible substrate (a flexible mesh) of Emmerich et al. would be configured to comprise a temperature sensor. Claim 2 includes the language, "the partially flexible substrate further comprises temperature sensors." Since it is not clear how a temperature sensor could be incorporated into the substrate of Emmerich et al., claim 2 is allowable over Emmerich et al.

The applicants note that the EDF sheet 1 of Yoshida (see, e.g., FIG. 4) includes a thermistor. However, the substrate 2a/2b does not. Since Yoshida does not disclose a substrate comprises temperature sensors, claim 2 is allowable over Yoshida.

Since neither Emmerich et al. nor Yoshida disclose a substrate comprises temperature sensors, much less a partially flexible substrate comprises temperature sensors, as recited in claim 2, claim 2 is also allowable over the combination of

Emmerich et al. and Yoshida. Claims 3-5 are allowable at least for depending from claim 2.

Claims 6, 14, and 21 are allowable for reasons similar to those described above with reference to claim 1. Claims 7-13, 15-20, and 22-31 are either directly or indirectly dependent on the independent Claims 6, 14, and 21, respectively. Accordingly, Claims 7-13, 15-20, and 22-31 are at least allowable as being dependent on an allowable claim.

For the reasons given above, the applicants respectfully submit that Claims 1-31 are in a condition for allowance. The applicant respectfully requests that all rejections be withdrawn and the application be allowed at the earliest date possible. Should the Examiner have any questions or comments, he is encouraged to call the undersigned at (650) 838-4305 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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